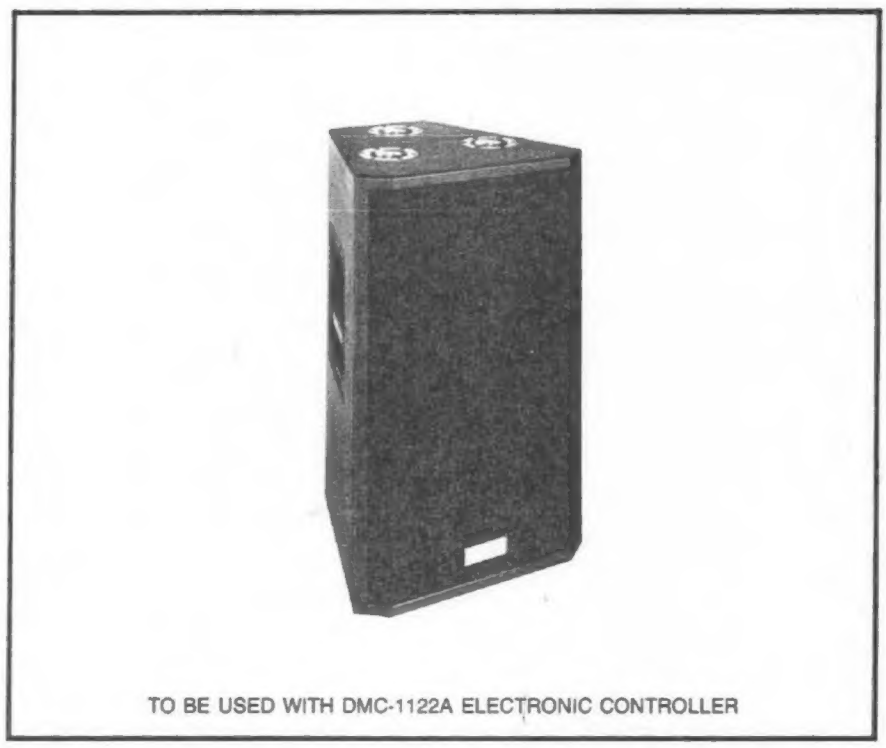


TO BE USED WITH DMC-1122A ELECTRONIC CONTROLLER

Electro-Voice®
a MARK IV company

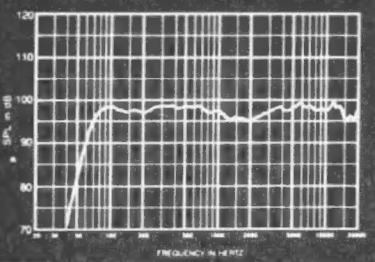


FIGURE 1 — DML-1122A/DMC-1122A Axial Frequency Response (1 watt/1 meter into LF midband)

DML-1122A Series

DeltaMax™ Two-Way Full-Range Electronically Controlled Sound Reinforcement System

SPECIFICATIONS

Frequency Response Measured in Far Field Calculated to One Meter on Axis, Swept One-Third-Octave Pink Noise, One Watt into LF Midband (2.83 V at 250 Hz), Anechoic Environment, ±3 dB (see Figure 1):
67-20,000 Hz

Crossover Frequency:
1,250 Hz

Efficiency,
LF/HF:
4.5/25%

Long-Term Average Power Handling Capacity Per EIA Standard RS-426A (see Power Handling section),
LF/HF:
300/75 watts

Short-Term Power Handling Capacity (10 milliseconds),
LF/HF:
1,200/300 watts

Maximum Long-Term Midband Acoustic Output,
LF/HF:
13.5/18.8 watts

Sound Pressure Level at One Meter, One Watt Input Power, Anechoic Environment, Band-Limited Pink-Noise Signal,
LF/HF:
98/110 dB

Typical System Maximum Sound Pressure Level at One Meter, Anechoic Environment,
Continuous:
123 dB
Peak:
129 dB

Beamwidth Angle Included by 6-dB-Down Points on Polar Responses for One-Third-Octave Bands of Pink Noise,
1,000-20,000 Hz Horizontal (see Figure 3):
80° (+25°, −20°)
3,800-20,000 Hz Vertical (see Figure 3):
55° (+25°, −5°)

Directivity Factor R_θ (Q), 1,000-20,000-Hz Median (see Figure 4):
10.6 (+9.3, −4.0)

Directivity Index D_I, 1,000-20,000-Hz Median (see Figure 4):
9.8 dB (+3.2 dB, −1.6 dB)

Distortion, 115 dB SPL at One Meter, Shaped Spectrum (see Figure 5),
Second Harmonic,
100 Hz: 4.5%
800 Hz: 0.8%
2,000 Hz: 0.7%
5,000 Hz: 1.6%
Third Harmonic,
100 Hz: 0.9%
800 Hz: 1.8%
2,000 Hz: 0.9%
5,000 Hz: 1.6%

Transducer Complement,
HF: DH1A variant compression driver HP-type 80° × 55° horn
LF: DL12X variant woofer

Impedance,
Nominal LF/HF:
8.0/8.0 ohms
Minimum, LF/HF:
8.4/6.0 ohms

Recommended Amplifier Power (see Amplifier Requirements section),
HF:
125-250 watts
LF:
300-600 watts

Input Connections:
Neutrik Speakon™ NL4MP-R

Enclosure Materials,
Structural:
.75-inch 14-ply birch plywood
Finish,
DML-1122AP and DML-1122APF:
Black textured paint
DML-1122AC and DML-1122ACF:
Black carpet covered
Grille:
Steel with charcoal-gray foam

Hanging (DML-1122APF and DML-1122ACF only):
Six steel-reinforced aircraft-type pan fittings (accepts Kinedyne 32326 and 32343 fittings)

Stand Mount Socket (DML-1122AC and DML-1122ACF only):
1⅜-inch diameter

Dimensions,
Height: 58.4 cm (23.0 in.)
Width: 37.1 cm (14.63 in.)
Depth: 35.6 cm (14.0 in.)

Net Weight:
32.1 kg (71 lb)

Shipping Weight:
35.2 kg (78 lb)

DESCRIPTION

The Electro-Voice DML-1122A full-range loudspeaker system is part of the DeltaMax™ series and is intended for high-level sound reinforcement in touring-sound and permanent-installation applications. The DML-1122A is a two-way biamped loudspeaker system designed to be used with the DMC-1122A dedicated electronic controller. In addition to providing conventional frequency division, time delay and equalization, the electronic control unit offers unique speaker-protection circuitry which monitors the excursion and temperature of both the woofer and compression driver, as well as amplifier clipping. When an overload condition is sensed at the amplifier terminals, the input signal is modified to eliminate the problem without changing the crossover frequency or spectral balance of the program material. The loudspeakers and electronics were designed as an integral package to achieve maximum acoustic output with optimal sonic quality. There are four models in the DML-1122A series: the DML-1122AP (painted finish), the DML-1122AC (carpeted finish), the DML-1122APF (painted finish with flying

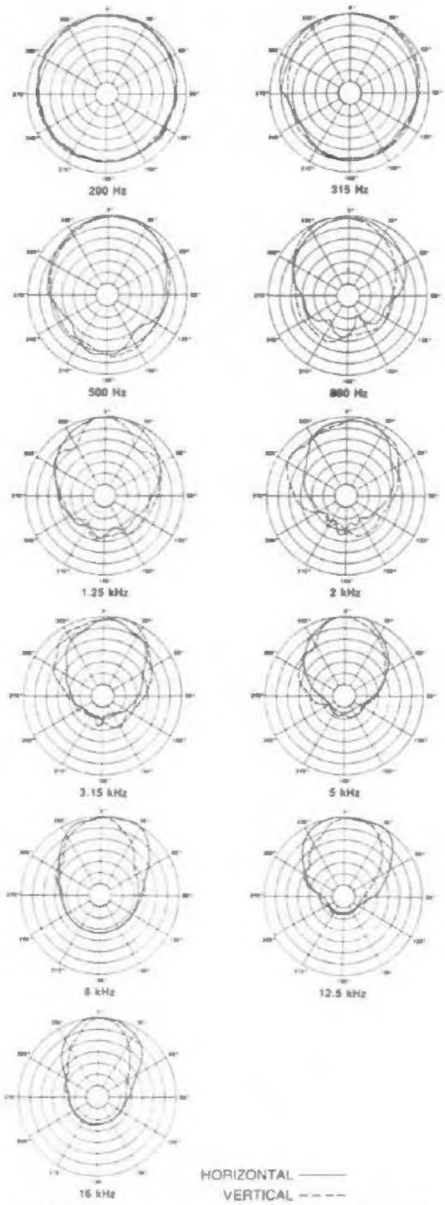


FIGURE 2 — DML-1122A/DMC-1122A Polar Response (⅓-octave pink noise, 4 volts at 20 feet)

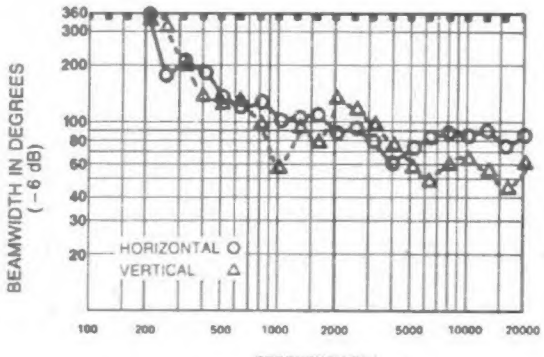


FIGURE 3 — DML-1122A/DMC-1122A Beamwidth vs. Frequency Whole Space (anechoic)

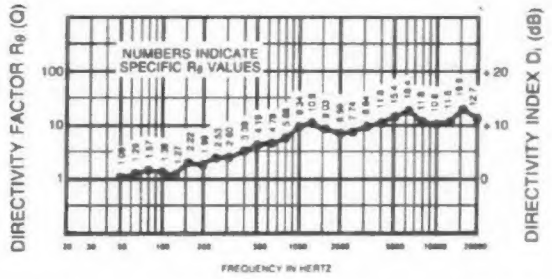


FIGURE 4 — DML-1122A/DMC-1122A Directivity Factor and Directivity Index vs. Frequency Whole Space (anechoic)

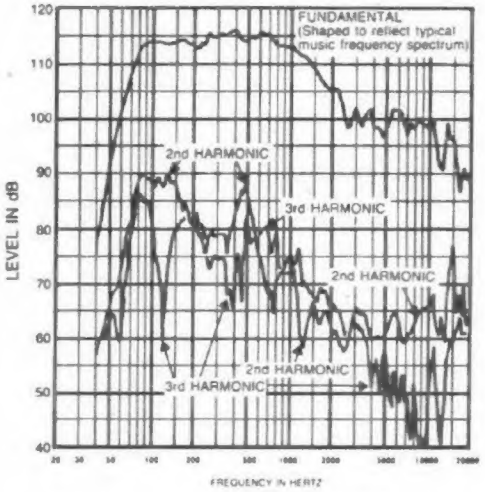
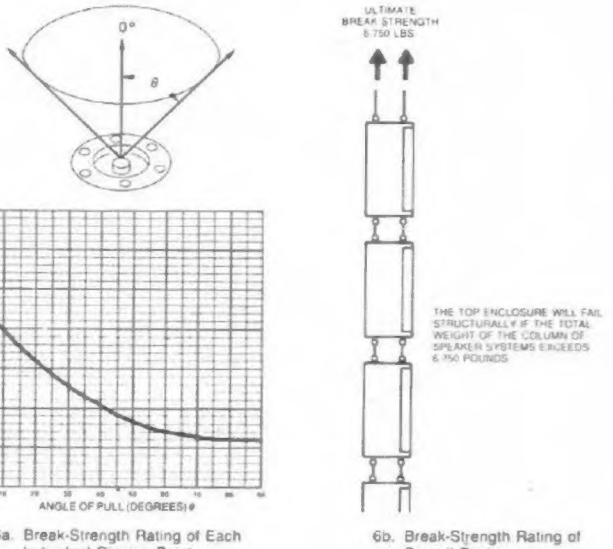


FIGURE 5 — DML-1122A/DMC-1122A Harmonic Distortion (115 dB SPL/1 meter using typical music frequency spectrum)



6a. Break-Strength Rating of Each Individual Rigging Point

6b. Break-Strength Rating of Overall Enclosure

FIGURE 6 — DML-1122APF and DML-1122ACF Ultimate-Break-Strength Ratings

Front-panel indicator lights show input level, compressor gain reduction, and HF and LF output limit thresholds for excursion, temperature, and amplifier power. Operation of all protection functions is completely automatic.

The DeltaMax system will work with any professional power amplifier within the stated power and gain range. See Amplifier Requirements section.

The DMC-1122A and DMC-1152A controllers are designed to be used only with the Electro-Voice DML-1122 and DML-1152 speaker systems, respectively. **Do not use with any other speakers.**

PRINCIPLE OF OPERATION

Refer to the block diagram in Figure 5.

The signal path consists of an active differential input circuit which drives a VCA, which is controlled by a special compressor circuit. After the VCA is a fourth-order Linkwitz-Riley crossover circuit.

The high-frequency output has an equalizer which flattens the frequency response of the constant-directivity horn and compression driver from their natural mass-loaded response characteristic.

The low-frequency output has a delay equalizer to compensate for the relative physical positioning of the LF and HF drivers, and their actual phase response at the crossover frequency. An underdamped second-order high-pass filter, combined with a variation of a first-order shelving low-boost function provides optimum low-frequency response with the DeltaMax loudspeakers.

The output sections provide transformer-isolated, low-distortion differential drive signals.

The compressor has both a signal control input and a compression-ratio control input. The control voltages are developed from the sense channels. The primary dynamic action (gain reduction) of the compressor is controlled by a dual-time-constant detection circuit driven by rectified audio sensed at the speaker terminals. The compression ratio above the threshold is determined by the condition of the speakers. Temperature modeling circuits will increase this compression ratio when it becomes necessary. Also, compression will increase to prevent amplifier clipping, when this function is selected.

The compressor gain transfer has a gradually changing slope across its threshold. This soft-knee design reduces the audibility of the compression. The compression ratio above the threshold can vary from 1:1 (no effect) to about 20:1 (hard limiting).

INSTALLATION

Mounting

The unit is one rack-space high, 4.5 cm (1.75 in.), and fits a standard EIA 19-inch rack. Mount the DMC controller in a rack cabinet near the power amplifier(s) to make wiring easy.

Grounding

A widely accepted grounding technique for audio systems is the star connection (single-point) ground. The final configuration will be determined by the size of the system and the equipment used in the system. However, the star-connection grounding system is recommended as a starting point.

Never lift the third wire safety ground of the ac power cable. It protects against possible shock hazard.

Ventilation

Adequate ventilation should be provided in the rack to maintain a reasonable operating temperature. Under any conditions the ambient temperature inside the rack cabinet should not exceed 60°C (140°F).

Security

A security cover and attachment screws are supplied to protect the control settings against uninvited adjustments.

AMPLIFIER REQUIREMENTS

The DML-1122 and DML-1152 speaker systems require professional power amplifiers with the following ratings:

DML-1122
- LF: 300-600 watts continuous into eight ohms
- HF: 125-250 watts continuous into eight ohms

DML-1152
- LF: 400-800 watts continuous into eight ohms
- HF: 125-250 watts continuous into eight ohms

The use of amplifiers with lower power rating is acceptable; however, the full-power capabilities of the DML speakers will not be realized. The use of amplifiers with significantly higher power ratings is wasteful and may endanger the loudspeakers; it is generally not recommended. Under certain circumstances higher rated power amplifiers are acceptable. It is acceptable to drive either the DML-1122 or DML-1152 speakers with a stereo power amp utilizing one channel to drive the low frequencies and the other channel to drive the high frequencies.

CONNECTIONS

The DeltaMax controller has XLR-type connectors for signal input and outputs. Pin 1 is shield, pin 2 is high (+), and pin 3 is low (–).

The LF and HF sense connections are binding post/banana jacks.

The DML-1122 and DML-1152 loudspeaker systems are equipped with ITT-Cannon EP-4 connectors. Each cabinet has two connectors: one male (EP-4-14) for input signal and one female (EP-4-13) for paralleling additional DML loudspeakers. The mating connectors for the cable ends are the EP-4-11-IC for the input connection and the EP-4-12-IC for the parallel connection.

The pin connections are as follows:

Pin 1 = LF (–)
Pin 2 = LF (+)
Pin 3 = HF (–)
Pin 4 = HF (+)

NOTE: DML-1122 speakers may be paralleled with other DML-1122 speakers if the amplifier is capable of delivering adequate power at the lower impedance. The same holds true for the DML-1152 speaker systems.

ARCHITECTS' AND ENGINEERS' SPECIFICATIONS

The controller shall consist of a single-channel two-way crossover circuit with fourth-order Linkwitz-Riley filters, a compressor system with variable compression ratio and dual-time-constant detector, a voltage clamping circuit for excursion protection, and speaker modeling circuits which control the compressor and clamp circuits to prevent destruction of the high-frequency and low-frequency drivers due to excessive drive level. Included in the signal path shall be special frequency and time-delay equalization to provide flat (±3 dB) on-axis anechoic frequency response in the range of 50 Hz to 20 kHz for the DML-1152 loudspeaker and 70 Hz to 20 kHz for the DML-1122 loudspeaker.

The total harmonic distortion through the signal path shall be nominally 0.03% and no greater than 0.1% from 20 Hz to 20 kHz, within the output's passband. The noise at the outputs, measured with a 20-20,000-Hz equivalent-noise-bandwith filter, shall be typically –86 dBu.

The signal input shall be active differential with a level capability of +18 dBu, and a female 3-pin XLR-type connector. The outputs shall be transformer isolated with a level capability of +18 dBu into 600 ohms, and male 3-pin XLR-type connectors. There shall be two active diffential sense inputs for speaker protection, with binding-post/banana-jack connectors.

Front panel controls shall include LF and HF level controls, LF and HF amplifier calibration controls, and a switch to control the amplifier limit function, all accessible with a screw-

driver, after removing the security cover. There shall be a power switch on the front panel.

Front panel indicators shall include input level, gain reduction, LF output limits (for amplifier, excursion and temperature), HF output limits (for amplifier, excursion and temperature), and power on.

The chassis shall be made of painted steel with a gray front panel and white graphics. It shall be rack mountable in a 19-inch EIA rack, and be 4.45 cm (1.75 in.) high and 21.4 cm (8.4 in.) deep, excluding connectors. The unit shall weigh 3.6 kg (8 lb). The unit shall be an Electro-Voice DMC-1122A (Electro-Voice DMC-1152A).

WARRANTY (Limited)
Electro-Voice Professional Sound Reinforcement Electronic Components are guaranteed for two years from date of original purchase against malfunction due to defects in workmanship and materials. If such malfunction occurs, unit will be repaired or replaced (at our option) without charge for materials or labor if delivered prepaid to the proper Electro-Voice service facility. Unit will be returned prepaid. Warranty does not extend to finish, appearance items or malfunction due to abuse or operation under other than specified conditions, nor does it extend to incidental or consequential damages. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion may not apply to you. Repair by other than Electro-Voice or its authorized service agencies will void this guarantee. A list of authorized service centers is available from Electro-Voice, Inc., 600 Cecil Street, Buchanan, MI 49107 (AC/616-695-6831); Electro-Voice, Inc., 3810 148th Avenue N.E., Redmond, WA 98052 (AC/206-881-9555); and/or Electro-Voice West, 8234 Doe Avenue, Visalia, CA 93291 (AC/209-651-7777). This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Service and repair address for this product: Electro-Voice, Inc., 3810 148th Avenue N.E., Redmond, WA 98052.

Specifications subject to change without notice.

ELECTRO-VOICE, INC., 600 Cecil Street, Buchanan, Michigan 49107
MANUFACTURING PLANTS AT ■ BUCHANAN, MI ■ NEWPORT, TN ■ SEVIERVILLE, TN ■ REDMOND, WA ■ GANANOQUE, ONT.

a MARK IV company
Form 2884A